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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,121	08/16/2001	Yves Dellmotte	CRT-543(1417SP585)	8727

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Janice Guthrie, PH.D
Baxter Healthcare Corporation
P.O. Box 15210
Irvine, CA 92623-5210

EXAMINER	
VO, HAI	

ART UNIT	PAPER NUMBER
1771	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/831,121	DELLMOTTE ET AL.	
	Examiner	Art Unit	
	Hai Vo	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *46-71,73,74 and 76-134* is/are pending in the application.

4a) Of the above claim(s) *90-130* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *46-71, 73, 74, 76-89 and 131-134* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The 112 claim rejections are withdrawn in view of the present amendment.
2. The 102 art rejections over Rubens (US 5,272,074) is withdrawn because Rubens does not explicitly disclose the fibrin network extending into at least one pore of the expanded PTFE. New ground of rejections is made in view of Rubens (US 5,272,074) as evidenced by EP 366 564.
3. The art rejections over WO 96/22115 are maintained.
4. The withdrawn art rejections over EP 366 564 in the previous Office Action are put back on in this Office Action because the negative limitation "non-hydrolyzed fibrin network" is removed from the claims.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 46-55, 59-71, 73, 74, 76-83, 89, and 131-134 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 366 564 (hereafter EP'564). EP'564 teaches an antithrombic medical material comprising a support formed from expanded polytetrafluoroethylene (PTFE) and a fibrin network covering the support. It appears that EP'564 uses the porous PTFE to form a support as Applicants, therefore, it is not seen that the support would have performed differently than that of the present invention in terms of hydrophobic properties and pore/node structure as recited in the claims. This is in line with ***In re Spada***, 15 USPQ 2d 1655 (1990)

which holds that products of identical chemical composition can not have mutually exclusive properties. Further, EP'564 teaches a process of making the fibrin membrane on the surface of the porous support wherein the fibrin membrane was washed with a saline solution to remove the excess reaction solution (example 1). Likewise, it is clearly apparent that very little or no reacting fibrinogens were left within the fibrin membrane after the saline solution treatment; i.e., the fibrin membrane substantially free of unbound fibrinogen covering the face of the porous support. This reads on Applicants' fibrin network containing less than 0.1% by weight of unreacted fibrinogen. EP'564 teaches the fibrin permeated the pores in the e-PTFE graft tube. This reads on the fibrin network being positioned over a portion of the pores and the fibrin network substantially uniform and homogeneous. The fibrin layer has a thickness of 20 microns (page 11, line 47) within the claimed range. The EP'564 appears to use a thrombin solution containing Factor XIII and a fibrinogen solution to form the fibrin membrane. The medical device of EP'564 serves for the same purposes. Therefore, it is the examiner's position that a network of adjacent alveoli, cell structure, moisture content, fibronectin content, calcium content would be inherently present so as to enable the medical device to effectively function as an implant, an artificial skin. This is in line with ***Ex parte Tummers et al.*** 137 USPQ 444 which holds that if the chemical composition of the claimed article of manufacture recited in the claims is the same as the identical structure of the prior art, it is immaterial that the applicant recognized different advantages flowing therefrom than did the prior art. The fibrin layer is formed from a plasmin solution

which substantially contains water soluble proteins and sugars. The recitation that the element is a "an filter" has not given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. ***Kropa v. Robie***, 88 USPQ 478 (CCPA 1951). Accordingly, it is the examiner's position that EP'564 anticipates the claimed subject matter.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 366 564. EP'564 teaches the fibrin network extends through the pores of the support. However, EP'564 does not specifically teach how far the fibrin network extends through the pores of the support. Since the depth of the support through which the fibrin network extends is recognized as s a result-effective variable, differences in the depth of the support will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such depth is critical or provides unexpected results. Therefore, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the element wherein the fibrin network permeates

through the pores to a depth of the support instantly claimed motivated by the desire to promote the adhesion between the support and fibrin network. This is in line with ***In re Aller***, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

9. Claims 84-88 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 366 564 as applied to claim 46 above in view of WO 96/22115. US 5,989,215 to Delmotte et al is relied on as an equivalent form of WO 96/22115. EP'564 does not specifically disclose the fibrin membrane comprising a second fibrin network superimposed on a first fibrin network. Delmotte teaches a fibrin delivery device comprising a fibrin film that has two or more fibrin layers (column 6, lines 30-35). The fibrin layers, each comprise pores with different pore sizes (column 14, lines 10-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to motivated by the desire to use the fibrin membrane having two fibrin layers with different pore sizes motivated by the desire to provide the fibrin membrane having a double coating, one for a biomechanical barrier coating and another for achievement of hemostasis and wound repair.
10. Claims 46-49, 52-55, 59-66, 69, 72, 78, 79, 81-83, 89, and 131-134 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rubens (US 5,272,074) as evidenced by EP 366 564. Rubens teaches a medical device comprising a polymeric material coated with a layer of thermally denatured fibrinogen (abstract). The fibrin network is free of unbound fibrinogen (column 6, lines 17-19). The fibrinogen is converted into the fibrin, which

reads on Applicants' fibrin network containing reacted fibrinogen (column 3, lines 30-35). Likewise, it is clearly apparent that the pores of the polymeric network are free of fibrinogen as well. The polymeric material has a thickness of 0.10 cm or 10 mm within the claimed range (column 5, lines 65-66). The fibrin layer has one surface in contact with the polymeric material and another surface further cross-linked by additional fibrinogen and factor XIII (abstract). The fibrin network is provided with cells and protein (column 4, lines 15-18, 43-45). The polymeric material is formed from expanded polytetrafluoroethylene (ePTFE) (column 2, lines 45-50), which would be inherently hydrophobic and substantially has at least two pores spaced from one another for define a node spacing because Rubens uses the ePTFE to form a support material as Applicants, therefore, it is not seen that the support material would have performed differently than that of the present invention in terms of hydrophobic properties and pore structure and node spacing. The fibrin coating is thin and uniform (column 3, lines 23-24), which reads on Applicants' uniform and homogeneous fibrin network. Rubens appears to use a solution containing Factor XIII, a fibrinogen solution, calcium chloride with the concentrations within the claimed ranges to form the fibrin layer. Rubens discloses the calcium content having a concentration of 2 mM, which is equivalent to 80 μg/cm3. The medical device of Rubens serves for the same purposes. Therefore, it is the examiner's position that a network of adjacent alveoli, bonding between the cells or protein with the fibrin, and moisture content would be inherently present so as to enable the medical device to effectively function as a vascular graft. This is in line with ***Ex parte Tummers et al.***

137 USPQ 444 which holds that if the chemical composition of the claimed article of manufacture recited in the claims is the same as the identical structure of the prior art, it is immaterial that the applicant recognized different advantages flowing therefrom than did the prior art. The recitation that the element is a "an filter" has not given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. ***Kropa v. Robie***, 88 USPQ 478 (CCPA 1951). Rubens does not specifically disclose the fibrin network extending into ***at least one pore*** of the expanded PTFE. However, EP 366 564 (EP'564) evidences that the fibrin network extends into *the pores* of the ePTFE substrate by filling the substrate with the fibrinogen. Therefore, it is the examiner's position that extending of the fibrin network into ***at least one pore*** of the ePTFE substrate would be inherently present in accordance with the saturating process disclosed in the Rubens reference. Accordingly, Rubens anticipates or strongly suggests the claimed subject matter.

11. Claims 50 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rubens (US 5,272,074) as evidenced by EP 366 564, as applied to claim 46, further in view of Clapper (US 5,744,515). Rubens does not specifically disclose the ePTFE having the pores extending through its thickness and the node spacing from 5 μm to 100 μm. Clapper teaches a vascular graft comprising an ePTFE support having the pores extending the thickness of the support and the node spacing of 60 μm (column

2, lines 28-30 and column 9, lines 5-10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the ePTFE having the pores extending through its thickness and the node spacing as taught by Clapper motivated by the desire to promote the cell attachment.

12. Claims 73, 74, 76 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rubens (US 5,272,074) as evidenced by EP 366 564, as applied to claim 72, further in view of Lamuraglia (US 5,824,080) as evidenced by Rudolph et al (US 5,242,792). Rubens does not specifically disclose the ePTFE having the pores partially treated with glycerol, sugar and mixtures thereof. Lamuraglia teaches a vascular graft comprising an ePTFE support being treated with lyophilization before implantation to eliminate the vessel graft antigents and preserve the vessel functions (column 2, lines 28-30 and column 9, lines 5-10). Rudolph et al (US 5,242,792) evidence that lyophilization is a process of treating the cells with sugar and glycerol. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the ePTFE lyophilized before implantation to eliminate the vessel graft antigents and preserve the vessel functions.

13. Claims 56-58, 67, 68, 70 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rubens (US 5,272,074) as evidenced by EP 366 564. Rubens does not specifically teach how far the fibrin network extends through one pore of the support. Since the depth of the support through which the fibrin network extends is recognized as s a result-effective variable, differences in the depth of the support will not support the patentability of subject matter encompassed by the prior art

unless there is evidence indicating such depth is critical or provides unexpected results. Therefore, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the element wherein the fibrin network permeates through the pores to a depth of the support instantly claimed motivated by the desire to promote the adhesion between the support and fibrin network. This is in line with ***In re Aller***, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

Rubens does not specifically teach the thickness of the cross-linked fibrin network. However, Rubens discloses the desired thickness of the fibrin network can be obtained by varying time, temperature and protein concentration (column 4, lines 10-14). Therefore, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the cross-linked fibrin network having a thickness within the claimed range because such would be recognized by one skilled in the art as dependent upon the intended use of the product. This is in line with ***In re Aller***, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

The same token is applied to the void volume of the fibrin network and the alveoli thickness. The desired void volume and alveoli thickness can be obtained by varying time, temperature and protein concentration. Therefore, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the

art at the time the invention was made to employ the void volume and alveoli thickness within the claimed ranges because such would be recognized by one skilled in the art as dependent upon the intended use of the product. This is in line with ***In re Aller***, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

Rubens does not specifically teach the fibronectin content in the fibrin network. However, Rubens discloses that the addition of the fibronectin promotes the endothelial cell attachment (column 4, lines 40-45). Therefore, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the fibronectin content within the claimed range motivated by the desire to promote the endothelial cell attachement This is in line with ***In re Aller***, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

14. Claims 84-88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rubens (US 5,272,074) as evidenced by EP 366 564, as applied to claim 46 above in view of WO 96/22115. Rubbens does not specifically disclose the fibrin membrane comprising a second fibrin network superimposed on a first fibrin network. Delmotte teaches a fibrin delivery device comprising a fibrin film that has two or more fibrin layers (column 6, lines 30-35). The fibrin layers, each comprise pores with different pore sizes (column 14, lines 10-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the fibrin membrane having two fibrin layers with different pore sizes

motivated by the desire to provide the fibrin membrane having a double coating, one for a biomechanical barrier coating and another for achievement of hemostasis and wound repair.

15. Claims 46, 48-50, 52, 53, 59-89, and 131-134 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 96/22115 substantially as set forth in the 04/20/2005 Office Action. The art rejections have been maintained for the following reasons. Applicants argue that Delmotte does not disclose or suggest a fibrin network extending into the substrate pores because Delmotte disclose a fibrin film composed of two layers, one layer of which has a closed pore structure. The examiner disagrees. Applicants' attention is directed to column 6, lines 30-35. Delmotte discloses the fibrin film composed of two or more layers wherein one outer layer has a closed structure and other layers have an open structure. Likewise, it is cleary apparent that the fibrin layer can have three or four layers wherein one outer layer has a closed structure and other layers have an open structure. Accordingly, the art rejections are sustained.

16. Claims 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over by WO 96/22115 substantially as set forth in the 04/20/2005 Office Action. The same reasons set forth in the paragraph no. 15 is believed to be pertinent.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485.

The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HV

Hai Vo

HAI VO
PRIMARY EXAMINER